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We Are What We Eat; Ideal Drinking Water

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The following is a transcription of the Second Quarter 1971 issue of Dr. Royal Lee's *Applied Trophology* newsletter, originally published by Standard Process Laboratories.

We Are What We Eat

Man is made up of what he eats. The constituents of his food are those of which his body is composed. His foodstuff, derived from the vegetable and animal kingdoms, consists for the most part of matter that was formerly living.

Man cannot himself build up living tissue from materials which have in themselves no necessary connection with living protoplasm. This, plants do for him.

Out of the earth and air, and under the influence of the sun, they transmute certain inorganic substances—mineral salts, water and carbon dioxide—into organic foodstuffs suited to his use and to the use of the animals whose produce or whose whole flesh he uses as food. Man is, indeed, created out of the earth; and according as earth provides, by way of plant and animal life, the materials needed by his body, so is that body well, ill or indifferently made and sustained.

—Sir Robert McCarrison

Essential Minerals in Metabolism: Health Demands Balanced Nutrients

Unless we desire ill health, we dare not dispense with the essential organic minerals in our diet. Nature has provided these important links in the vital processes of systemic chemistry in mammalian life for thousands of years. Mineral deficiencies have been proven to be just as critical in modern diets as previously discovered amino acid or vitamin deficiencies.

Experiments have proved that all mineral nutrients interact and influence each other and should be in balance, just as all amino acids and vitamins should be in balance, to promote the necessary enzymatic action and to insure proper metabolism.

It has been stated that a bit of seawater is a natural constituent of our blood. We know that seawater is the natural reservoir of various mineral components. Many of these minerals have only recently been found to be essential to life. Some of them act as electrolytes, also only recently discovered, to maintain "ionic equilibrium" within the human system.

Plants absorb inorganic minerals and change them to organic forms; however, it is very probable that the original inorganic forms may in some way also be essential parts of the economy of living cells, both in animals and plants. For instance, the degree of hardness of drinking water, caused by the mineral content, has a bearing on heart action. Heart conditions being more frequent, according to statistics, where naturally soft of softened water is used for drinking purposes. An imbalance of nutrients results in poor growth and underdevelopment in plant and mammalian life. This is in accordance with Liebig's Law of the Minimum, as development is controlled by the low nutrient, or the one in relative minimum.

Macro and Micro Minerals

Only a few of the over one hundred known elements form the greater amount of organic matter in plants and animals. They are oxygen, carbon, hydrogen, nitrogen, and the mineral materials calcium, phosphorus, potassium, sodium, magnesium, chlorine, iron, and sulphur. Other important minerals rated essentially necessary to animal life, though present only in trace amounts, are cobalt, copper, iodine, manganese, molybdenum, zinc, selenium, chromium, and tin. Tin was added in 1970 through the research efforts of Dr. Klaus Schwartz, Professor of Medicine at University of California at Los Angeles. He had previously added selenium and chromium. Other minerals are also found in the body that may eventually prove to be necessary for good health. According to Dr. Schwartz, past methods of investigation were not quite sensitive enough.

Essentiality

Not all the mineral elements present in plants and animals are essential for life. Even though present and exerting beneficial effects, some elements do not qualify as essential. Organisms can grow normally in the absence of some of these beneficial elements. Sodium and silicon are two such elements in plant life and selenium, though fluorine and vanadium may be beneficial but not essential to mammals. However, the story on vanadium may change, with further research, as only recently it was found to play a part in mammalian blood formation.

To discover if an element is really essential to the growth and development of plants or animals, it must be studied in the absence of the mineral in question. If the results are death or abnormality then this particular mineral is deemed to be essential. The resulting abnormality caused by the lack of an essential mineral is considered to be a true deficiency disease. Even though the nutrient in question is present it may be useless, as the mammalian body, like the plants, has stringent rules in regard to the form in which the material must be presented for proper metabolism. For instance, the growth food milk contains a colloidal form of a calcium compound that is of a protein nature, which apparently explains the loss of assimilable calcium in pasteurized milk. Proteins are destroyed by heat much lower than the 145°F minimum required for pasteurization.

Catalysts

The macro-elements are complex parts of biochemical reactions. They are present in large quantities (in comparison with the trace or microminerals), as they serve mainly as constituents of protein, cell-walls or framework structures. For instance, nitrogen *as* an integral part of all protein becomes a part of all enzyme systems by furnishing the body with all nitrogenous compounds necessary for maintenance and growth. Further, besides protein all of the enzyme systems isolated to date have been found to contain an organic mineral and a vitamin working harmoniously. These serve as catalysts or catalytic agents, which in minute amounts can promote biochemical changes without themselves, as catalysts, being used up in the reactions. As the majority of these biochemical reactions are catalytic, evidently catalysts have a great influence on all microbes, plants, and animals.

Early in 1929, Dr. Royal Lee coined the word “catalyn” to represent the organic catalytic units found in natural food. Some twenty years later Professor Roger J. Williams of the University of Texas, an authority on nutrition, verified the authenticity of the word when he stated, “Natural food factors, or organic catalytic units, are indispensable to all cells and are, therefore, essential to good nutrition.”

Obviously, Dr. Lee was far in advance of the parade of nutritional thinking and has contributed many well thought out basic concepts that should provoke more advanced nutritional research as more sensitive equipment becomes available. These natural food factors now known to be enzymes, co-enzymes, ferments, hormones, and mineral activators are often destroyed by the usual treatment with heat, chemical additives, or the bleaching agents of modern food processing.

Loss of Micronutrients as Health Hazard

Several trace minerals, then, have proved to be essential for normal growth and development in mammals. A deficiency of any of these may result in marked physiological abnormalities. Therefore, from a nutritional viewpoint, they do qualify as essential minerals. Also, observation of their existence at certain levels in the blood, tissue fluids, and excretory products in some human diseases are an indication that they must have some specific value or significance in human metabolism. In fact, they have been found to be essential for the basic enzyme reactions commonly found in all species.

Their lack or deficiency usually creates a disordered metabolism with disease following as a consequence of such biochemical disorders. Generally, these mineral materials are classed as minor constituents of plant and animal life. In the present age of refinement, purification, and so-called sophistication, they usually occur in what is considered to be waste products of food, namely, the coarser leafy unbleached parts of vegetables, the peelings of potatoes and fruits, the outer layers and germ of the cereal grains and the vital organs of animals. All of these so-called waste materials contain minerals, vitamins, and proteins that are indispensable for proper enzyme

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formations and the normal assimilation of food.

Commercial Food Processing Losses

In a report to the Senate Subcommittee on Energy, Natural Resources and Environment, in August 1970 Dr. Henry A. Schroeder, Division of Trace Elements Laboratory of the Dartmouth Medical School, advised:

> "Most of the trace elements essential for health are removed from processed foods. Unfortunately, they are not restored to the food…The milling of wheat into refined white flour removes 40% of the chromium, 86% of the manganese, 76% of the iron, 89% of the cobalt, 68% of the copper, 78% of the zinc and 48% of the molybdenum, all trace elements essential for life and health…The residue of mill feeds which is rich in trace elements is fed to domestic animals."

Other nutritional losses through the milling and bleaching of white flour, according to Dr. Schroeder's testimony, are the major minerals calcium, iron, phosphorus, potassium, magnesium, and the vitamins A, B2, B3, B6, and E. Also, some of the heat labile amino acids, such as lysine and methionine, are lost. These losses can obviously cause improper metabolism as a result of poor enzyme formations.

Too many important parts of the flour are missing with the remaining ones being out of balance or in the wrong ratio. For instance, white flour is said to contain twice the amount of potassium in relation to magnesium when compared to whole wheat flour. Also, Andre Voisin, author of *Soil, Grass and Cancer*, advises of the importance of bran in whole wheat flour, as it contains a factor that protects against typhus. Although typhus fever is no longer a problem in our country, it does occur as an epidemic in many of the foreign countries now using our commercial white flour. Apparently, this anti-typhus factor joins the other losses of white flour. Nutritional scientists have invariably pointed out the shortcomings of commercial white flour.

This attitude was further reflected in October 1970, when Dr. Roger J. Williams, Professor of Biochemistry at the University of Texas, reported the results of a recent experiment to the National Academy of Sciences held at Rice University, Houston, Texas. As a part of this experiment, 64 rats were fed nothing but commercial white bread for 90 days. At the end of this period he reported, "Two-thirds of the animals were dead of malnutrition and the survivors were severely stunted." A reporter for the *New York Times* emphasized the fact by writing it up under the caption "Enriched White Staff of Life Kills Rats" (reprinted in *Milwaukee Journal* October 22, 1971).

Dr. Williams recalled that bread made from flour in a previous era was more nutritional when he stated, "They used to feed prisoners bread and water but that was a higher quality bread than we have today."

Medical Science Indifferent

Dr. Williams was quite perturbed that medical science had generally failed to take nutrition seriously as a part of the cause of disease. "If we look for more deep-seated reasons for the nutritional backwardness of the milling and baking industry," Dr. Williams stated in his report, "we can readily trace this back to the apathy, if not antagonism, exhibited by classical medical education toward human nutrition."

Domestic Animals Are Fed Better

Back in 1942, Professor A.J. Carlson of the University of Chicago, in an article in the *Journal of the American Dietetic Association*, stated:

> "Some of our malnutrition started with the processing, refining and purification of such foods as the cereal grains, modern milling processes shunting the most valuable part of these natural foods into the mouths of chickens, cattle and hogs. The germ and the outer coating of grains hold valuable proteins, minerals and vitamins…In my judgment, the recent addition of synthetic vitamins and minerals…is not a sound policy either for today or tomorrow."

In 1950, testifying before a Congressional Committee investigating chemical additives in food, he stated, "I have noticed…that whole wheat or unbleached flour is attractive to a great many insects and bugs, but when treated (by bleach poisons) they stayed away. Only humans will eat it."

In their book *Eat Well and Stay Well*, Dr. Ancel Keys, of the University of Minnesota, and his wife Margaret advise on the health values involved in the choice between dark and light flours (whole grain versus refined flours) when they state: "Usually the darker the loaf, the higher the protein and vitamin content…Dark rye flour is over 16% protein, whole wheat flour may be close to 13.5%; enriched all-purpose flours average 10.5%, self-rising about 9.2% and cake or pastry flour is only about 7.5% protein. Whole wheat flour contains about twice as much thiamine (B1) as does a light graham flour and some 15 times more than pastry flour."

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Why Phyllis Quinn's Slow Cook

Nutritionists advise that whole grain flours should be freshly milled just before use. It is a so-called trade secret that commercial whole wheat flour is customarily treated with more preservatives and bleach, as a weevil repellent, than is generally used in commercial white flour.

In regard to Dr. Schroeder's testimony, a Houston Chronicle article stated, "Would it shake you up a bit to know that pigs on the farm often get more nutritional groceries than those consumed by you and your family? Think about it the next time that you reach for a loaf of white bread…White bread is preferred by food-industry executives because it keeps on the shelf longer than more nutritious whole wheat bread and insects avoid it because it doesn't have enough food value to keep them alive."

It is doubtful if we retrieve all the lost minerals, proteins and vitamin nutrients when we eat the meat of domestic animals who unintentionally assisted in the robbery, since nutrition is stored primarily in the glands and organs of the animal instead of in the muscle meat.

Dumb Animals vs. Smart People

Did you know that animals can invariably tell good from bad food? Some years ago, at the University of Missouri, Department of Soils, tests were made on hogs with corn grown on various soils. Regardless of the different types of corn fed to them, the hogs ate only the corn that grew on the highly mineralized soils. After further checking it was found that rats in the warehouse only ate the corn from the same bags chosen by the hogs. Monkeys refuse to eat commercial sliced bread because it contains a mold inhibitor. Squirrels prefer to eat raw nuts that they themselves shell. They will not even shell a bad nut or one that is partially open as they can smell the oil rancidity, and roasted or salted nuts are very undesirable to them. Usually, they bury them.

According to Dr. Charlotte C. Taylor, nutritionist, if in doubt about the wholesomeness of some food, "Place a portion where animals, birds or insects can test it for you." If they avoid, it you should do likewise. Unlike other creatures man no longer possesses the protective instincts necessary to distinguish the difference between food and nutrition. He has become an easy prey for empty calorie, sweet-tasting foods. Commercial advertising has apparently won out over common sense. It is thought that man formerly possessed these natural instincts before so-called "civilization" dulled them by giving us a choice only between a variety of refined and processed foods. This left us with a confused and depraved mental relish for foods.

Good health demands that we supply our body cells with the essential mineral nutrients found in whole natural foods, which are not proportionately present in processed foods.

Cellular Malnutrition

Every cell in the body must daily obtain the nutritive elements required for repair and renewal. The bloodstream has been called a "pipeline," a "mobile cafeteria," or the "river of life," due to its ability to carry the various food elements in an assimilable form to the billions of body cells that make up the human body. We cannot afford to cheat the bloodstream with glib advertising or slogans on packages. For, as John Ruskin said nearly one hundred years ago, "There is nothing in this world that some many cannot make a little worse and sell a little cheaper, and people who consider price only are that man's lawful prey."

It is only reasonable to expect that all essential elements must be present, in an assimilable form, for the bloodstream to carry them to all living cells. In *Nutrition in a Nutshell*, in 1962, our often-quoted authority Dr. Roger J. Williams had this to say:

"Since every cell and tissue in our bodies needs nourishment, and each part may be subjected to nutrition which is faulty in varying degrees, the number of human ills that may arise because of imperfect nutrition is very large. Faulty cellular nutrition of one type or another may be a basic cause of most of the non-infective diseases—diseases that are at present poorly controlled by medical science…When we consume essentially refined foods—we crowd out of our diets the vital nutrients: enzymes, amino acids, vitamins and minerals."

Up to now, the newer science of nutrition has had an uphill course, but we believe its progress from now on will be more rapid and will have to be accepted, as soundproof is becoming available through the aid of electron microscopes and radioactive isotopes. Like pioneer nutritionist, doctor, and nobleman Sir Robert McCarrison, a modern biochemist Robert G. Jackson [*sic*] recently said, "Your body is made out of foods and can be no better than the foods you eat…Only natural foods can build a natural body."

The Ideal Drinking Water

Springwater or well water is the best drinking water, preferably a hard water containing calcium bicarbonate (the kind that is converted by heat to calcium carbonate, which is insoluble and collects in the bottom of the teakettle).

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Calcium bicarbonate is completely assimilated and builds bone by combining with the organic phosphorus found in cereals, amino acids from the diet, and the lecithins of natural fats.

It is this calcium bicarbonate that is essential in the bloodstream to prevent our children from becoming susceptible to polio, colds, and other febrile diseases of childhood. In fact, calcium bicarbonate deficiency alone can cause a child to have recurrent fever, a fever that disappears at once on the administration of calcium. Such calcium deficiency fevers are common in children during the ages of rapid bone growth, especially where the youngster is getting too much of such cereal foods as oatmeal and Wheaties, without enough hardwater calcium. The phosphorus of the cereal is out of proportion to the calcium bicarbonate intake.

Many dentists routinely prescribe calcium for young patients who show soft chalky teeth, are nervous, restless, and unmanageable. These children are often worse in summer, for the vitamin D effect of sunlight acts to raise their blood calcium at the expense of that of the cell fluids, reversing the normal flow of calcium from the blood to the tissues. Natural forms of vitamin D, such as cod liver oil, contain associated factors as well as the D, which aids the diffusion of calcium into the cells. The vitamin D alone acts to load up the bloodstream only, and you can well realize that a loaded transportation system is no guarantee of delivery unless some provision exists to unload the commodity at the destination.

This is a good example of how the unwitting chemist has misled the nutritional world by telling us that pure vitamin D was equivalent to cod liver oil. The pure vitamin D could never be at best more than half the vitamin complex and do half the job. In many cases it is worse than nothing. Nausea and inability to hold anything in the stomach is one reaction to viosterol poisoning. Butterfat is one good source of these associated factors, and the baby fed on prepared baby food that has the butterfat removed and hydrogenated fat put in its place is the best subject for viosterol poisoning. Practically all present-day baby foods are of this kind.

Good water is one that has been filtered through the ground to reach the well or spring and has thereby accumulated a load of antigens, otherwise known to science as “pyrogens” since they cause fever if injected into the bloodstream. They are the residues of disease-producing bacteria, and by drinking them we develop an immunity to the germ or virus that put them into the water.

In foreign countries where polio is relatively nonexistent as a known disease, the blood of the children has been found loaded with antibodies to polio, which prevent them from contracting the disease. These children were immunized the natural way, not by a shot of Salk vaccine. It is very probably that their diet of unrefined natural foods that promptly supplied the necessary factors to make antibodies was responsible for their freedom from polio. (The refined sugar of our candy, soft drinks and ice cream is undoubtedly an important difference in the dietary patterns. We know the best way to create a susceptibility to infectious disease in test animals is to feed a diet of demineralized foods, particularly if heat-treated or cooked.)

Cooking or boiling water destroys the antigenic effect of the pyrogens, so while boiled water is safe in that it cannot cause infection, it cannot build the real health of the person who has accumulated his normal quota of immunities against the prevalent infectious diseases of his community. You may begin to see why the most carefully protected children may be the least robust.

The addition of fluorides to water to protect children against tooth decay is, in our opinion, another mistake. Some water contains *calcium* fluoride in amounts of one part per million and has shown some possible evidence of causing a harder tooth enamel, although probably an abnormal form that is more brittle. But the addition of sodium fluoride (a chemical that is about 75 times as poisonous in animal tests) to drinking water seems poor judgment.

Dr. Clive McCay at Cornell University reports (*Jol. of Gerontology*, January 1957) that one part per million of sodium fluoride added to the drinking water of rats caused the reverse effect, in fact, creating tooth decay where it otherwise did not exist, and further, caused kidney cell breakdown in the older rats. Dr. Alton Ochsner of the celebrated Ochsner Clinic of New Orleans has reported that older persons lose their teeth faster if they get any fluorides in their water.

The inefficiency of sodium fluoride as a tooth preserver seems to have failed in England. Now with government approval, a dental school is testing the effectiveness of adding molybdenum to the water to prevent dental decay.

The populace is now becoming alarmed by the fact that when the water supplies have been fluoridated in any locality, unpredictable amounts of fluoride will be added to all the foods grown, manufactured, or cooked with fluoridated water.

In Holland, the government has halted the addition of fluorine in the water supplies until its investigation of harmful effects, among other things, on the thyroid gland, the bone system, and on calcification of arteries [is concluded].

Dr. G.J. Baerents of Amsterdam recently stated, “It is absolutely necessary for man to preserve the natural fertility of the earth and not to disturb the biological cycle of nature by artificial means.”

We need to keep in mind the basic principle, so well expressed by the first head of our Federal Food and Drug Administration, Dr. Harvey W. Wiley, that any poison, no matter how little, added to food or drink is too much, and a violation of the Pure Food Law. Like emery powder in a gear box, the damage is proportional to the amount and shortens life accordingly.

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